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SOCIETY OF ARTS.

FRIDAY, JUNE 24th, 1853.

ADVERTISEMENT DUTY.

In reference to the amended Resolution proposed by the Chancellor of the Exchequer, alluded to in the last Number of the JOURNAL, page 367, the following important Petition has been prepared and signed for Presentation, by the leading Publishers and Booksellers.

To the Honourable the House of Commons, in Parliament assembled.

The Petition of the undersigned Booksellers, Music-sellers, and Publishers,

SHEWETH—

That your Petitioners have seen with great satisfaction, that your Honourable House has passed a Resolution, that the Advertisement Duty ought to be abolished.

That your Petitioners have seen with regret the proposal of the Chancellor of the Exchequer to retain a part of the Advertisement Duty.

That the remaining Advertisement Duty will be liable to all the gross inequalities of the old duty.

That the words in which the duty is to be re-imposed, will include literary works, which have hitherto been exempted.

Your Petitioners therefore pray, that if your Honourable House should think fit to reimpose the Advertisement Duty, it will omit from the Chancellor of the Exchequer's Resolutions the words, "or in or with any pamphlet or literary work."

And your Petitioners will ever pray, &c.

Longman, Brown, and Co.
Simpkin, Marshall, and Co.
John Murray.
Walton and Maberly.
Robert Baldwin.
Arthur Hall, Virtue, and Co.
Cradock and Co.
Piper Brothers and Co.
Francis and John Rivington.
Aylott and Co.
John W. Parker and Son.
Houlston and Stoneman.
John Van Voorst.
Groombridge and Sons.
Campbell, Hansford, and Co.
Trübser and Co.
Wertheim and Macintosh.
Partridge and Oakley.
Orr and Co.
W. H. Allen and Co.
Smith, Elder, and Co.

D. Bogue.
J. A. Novello.
Effingham Wilson.
W. Tegg and Co.
T. E. Purday.
J. Williams.
Jackson and Walford.
Charles Dolman.
Leader and Cock.
Grant and Griffith.
Sampson Low.
George Routledge and Co.
R. B. and G. Seeley.
W. Benning and Co.
John Chapman.
Henry Henshaw.
Reeve and Co.
Varty and Owen.
W. H. Dalton.
James Ridgway.
Edward Moxon.
Richard Mills.
Robert Cocks and Co.
G. Metzler.

INDUSTRIAL INSTRUCTION.

THE publication of the Report of the Committee of the Council of the Society of Arts on Industrial Instruction, with the evidence on which that Report is founded, has been undertaken by the Messrs. Longman. It will be out on Monday.

INTELLECTUAL AND PHYSICAL POSITION OF THE WORKING CLASSES IN THE DUCHY OF NASSAU.

BY THOMAS TWINING, JUN.

1.—Primary Education.

IN the Duchy of Nassau, as well as in other parts of Germany, the education of the industrial classes is provided for by a complete system of elementary schools, extending to the smallest village, under the direction of Government. All children from six to fourteen years of age are obliged to attend these schools, unless they frequent some other institution. No child is allowed to remain without instruction.

The time of attendance is short for children of early age, but is gradually increased to the following scale, with a few deviations in country districts; namely, in the morning from seven to ten in summer; and from eight to eleven in winter; and in the afternoon from one to four, except Wednesdays and Saturdays, which are kept as half holidays. The names of children failing to attend are noted down, and their parents subjected by the Burgomaster to a fine, which is increased on recurrence of neglect.

The children learn very quickly to read by a kind of Phonetic system.—In what is called *Auschanung's Unterricht*, the sense of vision is used in a variety of ways for assisting the memory and facilitating the expansion of the intellect.

On leaving school at fourteen years of age, the scholar must be able to read German in German and Roman type, fluently, and with proper emphasis and expression; must be skilled in the rules of common arithmetic; be able to write compositions on subjects of business, with good orthography; and be possessed of some knowledge of geography, natural history, geometry, &c., &c.

The charge to the parents for this instruction is from one to four florins* per year for each child, which amount is paid into the treasury of the parish. The latter provides, under control of Government, for the salary of the master, as well as for school requisites of every kind, and also for the building of the school-houses. Poor communities receive subsidies from the Government treasury.

There are two seminaries, or primary schools, for the education of schoolmasters—one Evangelical, one Roman Catholic—in which young men from sixteen years of age and upwards, receive, at the expense of the Government, a thorough general and special education, including music. At the expiration of three years they have to pass an examination; after which they are appointed school-assistants, with a salary of about 150 florins, which, after two years, is somewhat increased. After another year or two, they are installed as schoolmasters (*Lehrer*), with a salary of 200 florins. Their subsequent promotion, and consequent increase of salary, which reaches up to about 700 florins, takes place according to seniority. I believe that the Government Board of Education, called *Schul Colleg*, to which the direction of the whole educational system is intrusted, is quite at liberty to take talent and meritorious exertions into due consideration, especially in the kind of promotion which takes place by the transferment of a master from one locality to another; but that there is at present, in consequence of the events of 1848, rather a tendency to keep down rising energies, which might perchance take a turn towards liberalism.

Though the rate of emoluments is unquestionably too

* The Nassau gulden or florin may be reckoned as equal to 1s. 8d., and twelve florins to 1l.

low, yet at the same time it must be borne in mind that the necessities of life are much cheaper in this country than in England, and the general mode of living simpler and more frugal. In country places the teachers have many little compensating advantages, which I need not detail, but with all, the great consideration is, that being Government servants they may look forward to promotion; and that, at all events, their livelihood is guaranteed by a regular system of pensioning. A teacher in Germany prefers an appointment of 400 florins at a Government school, to a salary of 800 florins at a private school.

Schoolmasters in country districts are generally trustees of small public libraries, superintend nurseries of fruit and other trees, in the cultivation of which they instruct the boys; are the leaders of singing societies, and almost always organists of the parish churches; an arrangement which is found as convenient as it is economical.

In connection with each school, girls are taught appropriate handiwork, every Wednesday and Saturday afternoon, by the wife of the teacher, or some other competent person. Females are, however, seldom or never employed for *intellectual* instruction in the elementary schools.

One of the most interesting features in the educational system of this country is, the peculiar smoothness with which it slips over an obstacle deemed almost insurmountable in England, viz., the diversity of religious persuasions.

The population of Nassau consists of Protestants and Roman Catholics, in the proportion of about three of the former to two of the latter. There are also a few German Catholics and Jews. Some districts contain only Protestants, others only Catholics. In many places they are mingled together in various proportions, always enjoying equal rights. In purely evangelical parishes, evangelical teachers are appointed; in purely Roman Catholic places, Roman Catholics; in places of a mixed population, both; or if the place is small, the preponderating number decides the question. "A long experience," says a respectable person, to whom I owe much information on these subjects, "has proved the practicability of a just poising of interests under circumstances apparently most difficult. If people see that you proceed with a conscientious endeavour to act with impartiality and justice they are readily satisfied."

The same plan of equitable and friendly adjustment extends throughout the whole system. Thus the *Schul Colleg*, or Education Committee mentioned above, is composed of three Protestants and two Catholics.

The above educational organization was introduced in 1817. Elementary schools were previously in existence, but entirely dependent upon the parochial authorities, who hired, as they would the herdsmen of the place, a man who could just read, write, and do a little ciphering, and to him the school was entrusted. The result may easily be imagined. The teacher was obliged to accommodate himself to the exigencies of the country people, and kept no school in summer. The scholars on leaving school could hardly read, write, or cipher; and the attainment of other useful knowledge was out of the question. This however applies more especially to the country; in towns the plan was already much better, and more regular.

In 1817 the Government took the matter in hand; and from that time education prospered in the hearts as well as in the minds of the people, because it was conducted on a plan adapted to the exigencies of the age, conformable to the regularly centralized administrative system of the country, and in unison with the mild and tolerant

spirit of its religion. There are, indeed, a few defects to remedy,—but they are less intrinsic in the system, than attributable to the manner in which it is administered; and on the whole, the success is so satisfactory that one cannot feel surprised at the very decided opinion which prevails here, that an educational system, directed and supported by the State, is the only one which can effectually drill the mass of a population into intellectual discipline.

THE ARTIFICIAL MEMBRANA TYMPANI.

BY JOSEPH TOYNBEE, F.R.S.

IN a paper recently read before the Royal Society, entitled, "On the Muscles which open the Eustachian Tube;" I have endeavoured to show that, contrary to the usually received opinion, the tympanum is a closed cavity, and that the air within it communicates with that in the cavity of the fauces *only* during the momentary act of swallowing. The muscles which open the Eustachian tubes in man, are the tensor and elevator palati. To prove that the cavity of the tympanum does not constantly communicate with that of the fauces, but that it forms a shut cavity by the closed condition of the Eustachian tubes, the following simple experiment may be performed. If the mouth and nose be closed during the act of swallowing the saliva, a sensation of fullness or distension is experienced in the ears; this sensation is produced by the air, which is slightly compressed in the fauces, passing into and distending the tympanic cavities. Upon removing the hand from the nose, it will be observed that this feeling of pressure in the ears does not disappear, but it remains until the act of deglutition is again performed, while the nose is not closed. In this experiment the Eustachian tubes were opened during each act of deglutition: during the first act, while they were open, air was forced into the cavity of the tympanum by the contraction of the muscles of the fauces and pharynx; and the guttural orifices of the tubes remained closed, until the second act of swallowing, which opened the tubes and allowed the air to escape. That the tubes are open only during the act of swallowing is also shown by the fact that the means usually adopted during the descent in the diving-bell to prevent the extremely unpleasant sensation of pressure in the ears, is to perform frequently the act of deglutition.

The conclusion at which I have arrived respecting the influence of the closed Eustachian tubes is, that for the function of hearing to be perfect, it is requisite that the tympanum should be a shut cavity, and that the analogy usually cited as existing between the ordinary musical instrument, the drum, and the tympanum, to the effect that in each it is requisite for the air within to communicate freely with the air without, is not correct. On the contrary, no *displacement* of the air is requisite for the propagation of sonorous undulations; and that were the Eustachian tubes constantly open, the undulations would extend into the cavity of the fauces, there to be absorbed by the thick and soft mucous membrane, instead of being confined to the tympanic cavity (the walls of which are so peculiarly well adapted to the production of resonance), in order that they shall be concentrated upon the labyrinth.

Having therefore determined the fact that the tympanum in its natural state is a closed resonant cavity, it occurred to me that the deafness associated with the partial or entire loss of the membrana tympani, was dependent upon the circumstance that the sonorous undulations were no longer confined to the tympanum, but were allowed to escape into, and be expended in the

meatus; it consequently suggested itself to me, that the function of hearing might be restored by again rendering the tympanum a closed cavity. I therefore resorted to the use of an artificial membrana tympani, composed of vulcanized India-rubber, in extremely delicate laminæ, or of very thin layers of gutta percha, and this apparatus has fully answered my expectations; by its means I have been enabled in the course of the last six months to improve the power of hearing in between thirty and forty patients, so that many have heard perfectly well, and others have no longer been excluded from the advantage of hearing general conversation. One of these patients was shown before the members of the Pathological Society of London; and I subjoin the printed Report of the meeting:

"The artificial membrana tympani, of which specimens are now placed before the Society of Arts, consists, as has already been stated, of a very thin layer of vulcanized India-rubber, or gutta percha. This is placed between two very delicate silver rings, from the eighth to the sixth of an inch in diameter, which are riveted together, leaving a portion of the membrane drawn tense in the interior of the circle, and a portion is left beyond their circumference, so as to prevent the latter from being in contact with the surface of the tube of the ear. To the surface of one of these rings a very delicate silver wire about an inch long, is fixed by two branches, and by the stem thus formed, the membrane can be introduced and removed at pleasure. The circular rings are so fixed to the wire, that the outer surface looks obliquely outwards and forwards instead of directly outwards; thus imitating the direction of the natural membrana tympani. The artificial membrana tympani is also made by placing the layer of membrane between two circular plates of silver, about a line in diameter; this is applicable to cases where the tube is so narrowed that the ring cannot pass. The membrane is made larger than it can be required for use, so that the surgeon can cut it down to the desired shape and size. The artificial membrane can be introduced and removed by the patient without any difficulty; for the latter purpose a pair of forceps may be used."

PORTABLE CAMERA.

BY GEORGE EDWARDS.

THE experience of many years enables me to propose some improvements in the mechanical arrangements of the Camera Obscura, which, to say the least, will not offend any of the laws of the sister sciences.

The novel construction of my camera ensures a very great reduction in bulk and weight, rendering it peculiarly convenient for tourists, whilst it nevertheless is efficiently rigid and stable in use, the parallelism of the lens and receiving surface being perfectly preserved, with means of preventing such motion as has hitherto existed in portable cameras, and which *must be fatal* to perfect definition in windy weather.

The framework of my camera is entirely of metal, the covering or sides being of "cording," or any other sufficiently opaque and flexible material. The colour of this covering would be better white than black, especially for the use of collodion. The impossibility at present of procuring it only prevented its use.

The top of my stand is furnished with a ball and socket joint, with a screw on the top. To this is screwed by its centre a light brass tube, equalling the total length

of the apparatus, and forming its foundation. At right angles to one end of this is secured (when required) a frame of sheet brass, of a size and form to receive the "plate box," to slide into it. On the other end is a slide which may be cramped in any position; to this is attached the lens end of the camera,—this, however, is only large enough to receive the lens,—four wires connect the four corners of the large end with the four corners of the small end, their ends being secured to the former by spring catches; their other ends pass freely through holes provided for that purpose in the small end, a distance sufficient for any adjustment of focus.

The skeleton or outline thus formed (that of a truncated pyramid) is covered with the material above described. The focus being adjusted, the two upper wires are securely clamped by screws provided for that purpose, so that no shade whatever can exist between the picture and lens,—an essential requisite for good definition.

The advance of the lens is a diaphragm of metal, supported by a folding bracket, the shading tube of which is also of silk "cording," and which, when packed up, folds over the lens.

To reduce the camera to its smallest dimensions, the wires are taken out and packed inside the tube; the small end of the camera then folds with the covering into the larger end, when the following figures give correctly the results:

The *area of the picture* obtained is *76 per cent.* of the *area of the largest end* of the Camera.

The *total bulk* (with the looking-glass and tube) is only *4 cubic inches per square inch of the picture.*

The *total weight* (without the looking-glass) is only *1½ oz. per square inch of the picture.*

I believe I may with confidence challenge competition in these important requisites, and doubt whether they have ever before been approached. These results are, however, obtained in what may be called a *small* camera, with an area of picture of only *38½ square inches*; in larger cameras, for which this arrangement is pre-eminently adapted, these results would evidently be still more advantageous. Neither is there any nicety of workmanship required, which renders the construction expensive or repair difficult; a very simple modification would permit the lens to be placed excentrically with the picture.

Two short legs screwed into the lower part of the brass frame (when required) would enable this camera to stand upon an ordinary tube, if necessary; and a short right-angled junction will permit the camera to be placed with the longest diameter vertical for tall objects.

A looking-glass for reflecting the view, and placing it *erect*, admits a reduction in the length of the legs, whilst a very small curtain keeps off all interfering light.

The present plate-box is adapted for glass or silvered plate; it is scarcely necessary to say that a simpler modification would adapt the same space for the reception of one or more papers.

It is easy to understand that a box sufficiently large to be used as a workshop out of doors (as Mr. Archer uses his camera) may be constructed on similar portable principles. Into this my camera would pack, with the rest of the required materials; and which is, I think, a better arrangement than combining the two.

GEORGE EDWARDS.

EAST ANGLIAN UNION.

The following Circular has recently been drawn up and circulated by the President of the Romford Literary and Mechanics' Institution, amongst the Institutions in the Eastern Counties :

SIR,—The great success that has attended the Union of Institutions in Yorkshire, in Lancashire, and in the West of England, has induced me, as President and Representative of an Institution, to propose the establishment of a similar Union among the Institutions in the Eastern Counties, under the title of "The East Anglian Union of Literary and Mechanics' Institutions."

The advantages to be derived from such a movement, may be briefly stated :

1.—The establishment of a Committee of those most interested and most experienced in their management, to confer upon measures best calculated to increase the usefulness, and to advance the interests of the Institutions; such Committee to be ready at all times, when desired, to afford advice, to revise rules, and to aid in promoting new Institutions.

2.—The publication of an Annual Report, embracing the principal features and experience of the Institutions in Union; thus aiding, by the collection of statistics and interchange of information, to promote their more efficient working, and to increase their numbers.

3.—To afford facilities for obtaining Lectures, by recording the names of those Gentlemen, in each locality, able and willing to lecture gratuitously; by the formation of a library of Manuscript Lectures and Collection of Diagrams, &c. for loan; and by arranging the circuits of efficient professional Lecturers.

4.—To secure the services of an Agent or Lecturer to visit the Institutions, to attend their Annual Meetings, Soirées, &c., to advise in difficult circumstances, to suggest improvements, &c.

5.—To hold an Annual Meeting of Delegates, such meeting to be convened in a different locality each year. Thus exciting a spirit of sympathy, and arousing emulation on behalf of the Institutions in varied districts.

Many other incidental advantages must accrue from such a combination, working as a wheel within a wheel, not interfering with, but promoting the object of the Union of all the Institutions under the Society of Arts.

The expenses of the general management might be met by a Subscription from the Institutions. The Yorkshire Union of 123 Institutions, has adopted the following scale:—Institutions having less than 70 Members, 5s. per annum; above 70 and less than 150, 10s. per annum; and 150 and upwards, 17. per annum. The special object of a paid Agent or Lecturer, is met principally by the Subscriptions of the Nobility, Gentry, and those interested in the District to be benefited; and surely the East Anglian District would not be behind in supporting a movement so calculated to promote the moral and intellectual progress of the people, and so characteristic of the age.

This communication will be considered as merely suggestive; farther detail with arrangements, must be left until the replies from Institutions prove whether such a measure would be likely to meet with general approval.

May I, therefore, respectfully request you to submit this Letter to the consideration of your Committee.

I am, Sir, yours very obediently,

W. TAYLOR JONES, M.A.,

ROMFORD,
June 20, 1853.

*President and Representative of the
Romford, Literary and Mechanics'
Institution.*

TEACHING MUSIC TO THE BLIND.

BY WILLIAM WOOD, OF THE SCHOOL FOR THE BLIND, ST. JOHN'S WOOD.

THE deep-rooted attachment of the blind to music has always been proverbial, arising probably from the acuteness of their sense of hearing, which enables them to appreciate the most delicate musical sounds, and partly perhaps, from its suitability to their peculiarly isolated condition. Music has therefore become one of their principal sources of pleasure and employment; and anything which is calculated to be of service to them in this respect, is of paramount importance to them.

It is very commonly supposed that the blind learn their music, technically speaking, "by ear." This, however, is not often the case, at least not in the common acceptance of the term. The blind generally play or sing as much from musical notation as those who see; the only difference being, that seeing persons have the music visibly before them, while the blind have it carefully stored up in their memory, and see it only with their mind's eye. The principal inconvenience to the blind is their dependence upon the seeing, through whom all their music must be received, and by whose assistance their memories must from time to time be refreshed. This inconvenience produces in the blind a love of originality which is very prejudicial to their interests.

Many attempts have been made in America, on the Continent, and in England, to provide tangible music for the blind; its success, however, has been very limited. To be of any real use to them, it must be capable of being deciphered with the greatest facility. In most of these attempts the common system of notation has been adhered to. But here much difficulty is presented to the touch, although this sense is so strongly developed in the blind. The shapes of the notes are very complicated to the touch, and their position on the stave very difficult to feel. From the breadth of the stave, which must be increased to render the notes at all perceptible, it becomes very easy for the finger, as it proceeds, to pass many of the numerous musical directions, which may be above or below the stave,—such as slurs, pauses, pianos, &c., &c., without feeling them at all; and the omission of any one of these musical signs, as well as others occurring within the stave, such as rests, dots, sharps, &c., &c., would be very detrimental to the music,—much more so than the omission of a letter in the embossed reading. I may add, that in reading music, the context is of very little assistance in deciphering a character. Under these circumstances, it is not surprising that so little success has attended the effort to produce a musical literature for the blind. As long since as 1844, I entertained the opinion that music expressed by arbitrary characters would possess many advantages, and immediately matured a plan of this kind, which was referred to in the Report of the London Society for teaching the Blind to Read, in the year 1845, of whose schools I am the Master. Within the last twelve months my plans have been carried out to some extent by the above-mentioned Society, and a collection of embossed psalm and hymn tunes, arranged for four voices, is in course of publication. The result is most satisfactory. The blind at our Institution read the music, and are enabled to sing by the *touch* with as much facility as seeing musicians sing at sight.

In adapting short-hand characters to musical notation, some advantage is gained by employing the characters of some one embossed system of reading already in existence, in preference to inventing new characters, for then no new type is required, and very much expense and inconvenience is saved.

Lucas's system which has been in use at this Institution from its commencement, is generally considered to be one of the most successful; and it possesses the singular advantage of being easily adapted to the purposes of Music. As it is well known that all blind persons can feel Lucas's characters, no proof is required that my embossed music, which is raised by means of the very same type, can be easily felt. The blind have been employed for some time past at our Institution, under my supervision, in arranging the types for embossing, and performing in fact all the work necessary for the production of the embossed books. The volume accompanying this paper, containing forty-seven psalm tunes, is the work of the blind. I am not aware that the blind are employed, to any extent, in producing embossed books upon any other system, which is an additional inducement for adopting Lucas's. But there is another advantage in these characters; namely, that the blind can not only read them, but can also easily emboss them without the aid of a printing press. This is done by means of a simple apparatus which I had the honour of submitting to your notice in the year 1847. Its object was to enable the blind to emboss Lucas's characters, and thus communicate with each other, keep accounts, and make memoranda. Having now adapted

these characters to music, and made some other little improvements in this apparatus, its value is considerably augmented. For these reasons I have chosen Lucas's characters for my musical notation.

Other arbitrary embossed systems have been adapted to music, and can probably be easily felt, but they have the disadvantage of taking up much more room than mine; it having been thought requisite to have two characters to represent a note, one for the *sound*, and the other for the *time*, in most of these plans. It is not so in the plan I am about to submit to you.

All the raised characters in Lucas's system, used under ordinary circumstances for letters and figures, are employed by me to represent notes and other musical signs, so that the blind are enabled to read and emboss their own music with facility.

The direction of the character used for the note shows what sound it represents. Thus:

A line declining to the left is C, or Do.

A line from left to right is D, or Re.

A line declining to the right is E, or Mi.

An upright line is F, or Fa.

A bow with the convex to the left is G, or Sol.

A bow with the convex to the right is A, or La.

A bow with the convex upwards is B, or Si.

The Time of the note is determined by the position of the dot on the character. Thus:

	Do C	Re D	Mi E	Fa F	Sol G	La A	Si B
Semibreves have a dot at the left at the top. Thus:							
Minims have a dot at the left at the bottom. Thus:							
Crotchets have no dot, and are represented thus:							
Quavers have a dot at the right at the bottom. Thus:							
Semiquavers have a dot at the right at the top. Thus:							
Demisemiquavers have the hyphen to the right. Thus:							

Both the sound and duration of each note being shown by one character, the staff of five lines used in the common system of notation is dispensed with, and the music is brought into one line, like the common reading.

In the Tenor and Treble lines notes above "E" the fourth space have the | placed before them, and notes below "F" the first space are preceded by _ . In the Alto and Bass lines notes above "G" have the | before them, and those notes below "A" are preceded by _ . (See Figures 1 and 2.)

The | when placed after a note lengthens its duration one half. (See Figure 3.)

Notes between • and • are slurred or tied. (See Figures 4 and 5.)

Fig. 1.



Fig. 2.

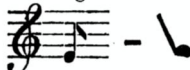


Fig. 3.

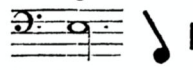


Fig. 4.

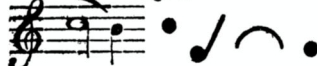
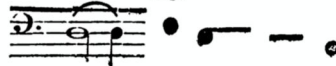









































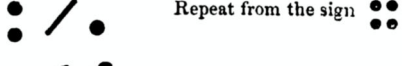




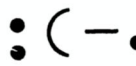

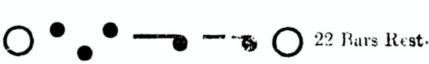
Fig. 5.





The following are some of the signs employed :

	(C.) Canto or Treble.		Flat.		Pianissimo.
	(A.) Alto.		Natural.		Mezzo Piano.
	(T.) Tenor.		Bar.		(Or.) Organ.
	(B.) Bass.		Double Bar.		(F.) Foot or Pedal.
	Semibreve Rest.		Finis.		(Cm.) Common Time.
	Minim Rest.		(S.) Solo.		(2.4.) Two-Four Time.
	Crochet Rest.		Forte.		Alla Breve Time.
	Quaver Rest.		Fortissimo.		Staccato.
	Semiquaver Rest.		Mezzo Forte.		More Staccato.
	Demisemiquaver Rest.		Pause.		(Cho.) Chorus.
	Sharp.		Piano.		

When any of the above signs or other musical directions are liable to be mistaken for notes, they are preceded by  and followed by  Thus :

	(V.) Voice.		(Sh.) Shake.
	Chorus.		Turned Shake.
	(D.) Diminuendo.		Repeat from the sign 
	Crescendo.		(D. C.) Da Capo.
	Rallentando.		(D. S.) Dal Segno.
	(T.) Turn.		22 Bars Rest.

Notes forming chords are generally preceded by  and followed by 

Psalmody and other similar music is divided into the several voice parts, and arranged one above the other. Each singer then feels that particular line suitable to his or her voice, and is enabled to sing by the touch with as much facility as seeing persons sing by sight. Organists feel all the parts, noticing that those notes which are struck together are placed exactly under each

other. The blind find it a great advantage to learn their own music without the aid of a seeing person, and to be able to refer to it at any time. It not only increases their stock of music, but enables them to play with greater precision, and assists them materially in studying the science of harmony.

The object of my embossing apparatus is to enable the

blind to make memoranda for their own use, to correspond with other blind persons, to keep accounts, and to emboss music in Lucas's characters. It consists of a desk, cushioned at the top, upon which the paper is secured. A bar extends across, and fits into holes on the sides of the desk. On this bar is a piece of brass, with an opening in it, called the slide, capable of being moved from right to left, and indicating precisely, by means of a rack, the distance it is moved. The characters are raised upon the ends of ten stamps, combined in a convenient form. By pressing any one of these moderately on the paper, through the opening in the slide, the character will be raised upon the reversed side of the paper, and can be easily felt. These ten stamps, by being used in different positions, will emboss the whole of Lucas's characters, which represent both letters and figures. The opening in the slide has eight corners; so that any one of the stamps can be inserted in eight different positions, and must be correctly formed. The lines are kept equi-distant by the bar, which is moved down the board, one hole at a time.

HOME CORRESPONDENCE.

LOCKS.

SIR,—As the recognition of merit, and the encouragement of improved manufactures and inventions by a body like the Society of Arts is a matter which ought to be as far removed from suspicion of any *gross error* as the fallibility of human judgment will admit, it will not be considered intrusive perhaps if I submit the following case to your judgment.

On the 1st of November, 1852, the Society issued their usual circular containing an offer of premiums for various articles, and amongst others (No. 83) "For the invention of a good and cheap lock, combining strength and great security from fraudulent attempts; cheapness, freedom from disarrangement by dirt, and requiring only a small key."

Being engaged in the manufacture of locks I considered the subject with some attention, but perceiving that the conditions were not perfectly consistent with each other I gave up all hopes of obtaining the prize, and looked forward with more curiosity than anxiety for the new productions of lock-making ingenuity that might be called forth by the liberal offer of the Society of Arts. At length your Journal of the 11th instant informed me that the medal of the Society, and a premium of 10*l.* had been awarded to Mr. Saxby, of Sheerness, for a lock that answered all the requisitions. On calling at the Society's rooms to inspect this piece of mechanism, I was surprised to discover that it was constructed on precisely the same principle as the "Yale Lock," described in a paper read before the Society in January 1852, and of the same construction as locks manufactured and sold by Mr. Cotterill of Birmingham; in short, that it had no claim whatever to be regarded as a new invention by the Committee of the Society, however honestly it might have been submitted as one by the maker. The want of originality in the lock, *supposing that it answered all the conditions* named in the circular, might have been passed over as a venial offence. This unhappily was not the case. That the essential requisite of security—"great security," as it is expressed in the circular,—did not belong to it, was proved by a very simple experiment. To be brief, *I picked this prize lock in the presence of parties connected with the Society, in the short space of three minutes!*

I do not mean to insinuate that there is any general carelessness in the selection of parties to determine the merits of competitors; or in their competency to form an opinion upon the worth and utility of the articles submitted to them. It is simply with the Committee on Locks, and with this particular case, that I have to deal; and it must be self-evident from the above statement, that they have betrayed their incapacity in the most flagrant manner. The case is still more surprising, when I observe that Mr. Chubb, of St. Paul's Churchyard, was a member of the Committee by which this award was made. This singular fact exonerates the Society indeed from much blame, for it cannot be surprising that a Committee of which a gentleman of Mr. Chubb's repute, as a mechanic in that particular branch of art, was a member, should be implicitly trusted.

79, CHEAPSIDE,
June 21st, 1853.

Respectfully yours,
A. C. HORRIS.

CHRONOMETERS.

SIR,—I observe in the last Number of the Journal, that Mr. Denison repeats the statements concerning the chronometer trials which he made after the reading of my paper.

The only ground he has for making these statements is founded on the rule which he framed and substituted for the one employed at the observatory.

This rule, as a method of ascertaining the merit of the different modes of secondary compensation, I have already shown by example has no foundation in truth.

It is therefore unnecessary that I should add many observations to those already published, or reply to the details of Mr. Denison's letter; but as some of his remarks are calculated to mislead, I will notice one or two portions.

In the first place, there is no report from the Astronomer Royal to the Board of Admiralty, that I am aware of, which states that any other method of secondary compensation has succeeded equally with mine; nor indeed any report, since one on the plans of Eiffe and Molyneux, in 1842, stating that any of the other methods had succeeded, on trial, at the Observatory at all.

In the second place, I have no complaint against the Exhibition Jury as a body; for Baron Seguiet and Professor Colladon have both written to me, and expressed their regret that the Council medal which they recommended should be awarded for my improvements in horology was not passed, owing to the opposition of Mr. Denison, who being the Chairman, was the only person in the class entitled to vote.

For the same reason, the recommendation of the foreign jurors to award a similar medal to Mr. Charles Frodsham, the present representative of the eminent house of Arnold, was not carried out.

I am more desirous to record these exertions of the foreign jurors to obtain justice for English exhibitors, because a report was circulated at the time that the French Jurors were using every effort to secure the principle honours for their own countrymen.

The following were the gentlemen that composed the Jury on horology:

Baron Armand Seguiet, Member of Institute, &c., France.

Professor Colladon, Switzerland.

E. B. Denison, Barrister, Chairman and Reporter.

E. J. Lawrence, Barrister.

Yours, &c.,

London, 21st June.

E. T. LOSEBY.

INDIAN TELEGRAPHIC SYSTEM.

Adelphi, 20th June, 1853.

SIR,—In the Extracts from Dr. O'Shaughnessy's Treatise on the Electric Telegraph in India, printed in the last Number of the Society of Arts' Journal, it is stated that when the Doctor had completed his experiments (commenced in 1839) in the Botanic Gardens of Calcutta, the results were published, and the line taken down; yet, although by these valuable experiments, it was ascertained that signals *could be transmitted* by electrical agency to a distance of twenty-one miles, the experimenter discovered that if the electric telegraph should ever be introduced for practical purposes into India, it must be effected by some more secure and certain way of protecting the line wires than by hanging them (as in the case of the experiments) on bamboos, exposed to hurricanes, atmospheric influences, and destruction by monkeys, &c.; and thus the subject remained in abeyance until 1849, when I submitted my plan for effecting this important object, in the first place to Sir Archibald Galloway, then Chairman of the East India Company, who took considerable interest in the matter; and afterwards in the form of an official letter or report to the Secretary, a copy of which I also sent to each of the Directors. This letter was accompanied by a summary view of the reasons for, and advantages of, a telegraphic system in India, very carefully drawn up by Mr. Hyde Clarke; the whole being illustrated by large maps of India, showing the proposed lines of telegraphic communication.

Shortly afterwards, I invited the Chairman and Directors to an "exposition" of my system, which was attended by some of the Directors. Samples of gutta percha covered copper wire, and of gutta percha, poisoned to resist the attacks of the white ant, &c., furnished by myself, were transmitted to Lord Dalhousie.

Lieut.-Col. Forbes and Dr. O'Shaughnessy reported at great length on my system, &c.; the latter gentleman distinctly pointing out the impossibility of using wires suspended between poles, &c., and approving generally of the underground system, though disapproving of gutta percha, as he considered it could not be used in the climate of India; yet, curiously enough, I observe that he has since ordered 700 miles of gutta percha covered wire.

From the above, Sir, you will at once perceive the reason for transmitting "A Despatch (in 1850), from the Court of Directors to the Government of India."

The following paragraphs from my letter to the Directors of the 5th July, 1849, may not be uninteresting in an historical point of view at the present time.

"On looking at the accompanying map, it will be seen that the lines for telegraphic communication (coloured blue), which it would appear desirable to establish in the first instance, are—1st. Between Calcutta, Agra, Delhi, and Simla. 2nd. Between Calcutta and Bombay, *via* Mirzapore, Rewah, and Nagpore; and 3rd. Between Bombay and Madras, *via* Hyderabad. In Great Britain and Ireland there are at present more than 2,000 miles of railway without the electric telegraph, and the cause of this is chiefly owing to the great cost which has hitherto attended their construction. It may be stated, in round numbers, that the average cost of the lines of telegraph already established in Great Britain has not been less than from 150*l.* to 200*l.* per mile; whereas, in America, the average cost has not exceeded one-third of the former rate."

"At the present time, however, I am in a position to lay down telegraphs at a charge nearer to that of the American system, yet withal by a plan less objectionable. The exposure of wires suspended on perishable wooden posts, as practised in England, America, France, and

other parts of Europe, is very objectionable on many accounts; more especially—1st, from effects of rain and fogs in diverting the electric fluid from its proper course. 2nd, From the injuries done to the posts and wires generally, and from the temptation which such exposure affords to malicious persons to cut off the communication altogether, or to alter the course of the electric current; all which have frequently taken place; not to mention the necessity of periodically reinstating the wooden posts at considerable expense. A notion is very prevalent that telegraphs cannot be established without the protection of railways. This is certainly true as regards the system at present adopted in Great Britain, but does not apply to that which I am now advocating, as the wires, instead of being suspended above ground, are *safely deposited at a proper depth below the surface of turnpike and other roads, towing and footpaths, &c.*"

"From the above it will appear that the English system is not in any way applicable to India. It is clear that on many other accounts, besides those mentioned as objections to the system at present adopted in this country, telegraphs on the English system could not be established in India without the protection of Railways."

"I now come to the telegraphic system proposed for India, which may be characterised as simple, effectual, and economical. A copper wire, coated with *gutta percha* (which is remarkable for its insulating properties), is laid at a sufficient depth below the surface of the roads, and extending between the various points to be included in the circuit; at either terminus, and at the intermediate stations, the wire is connected with the telegraphic instrument, and at suitable distances an earth battery is provided, with which the terminal instruments are also connected; thus a second line wire, which was formerly used (merely to complete the circuit), is dispensed with, as the earth (being, as it is said, a vast reservoir of electricity) completes the circuit."

"The line from Calcutta to Delhi would seem to present the most favourable opportunity of commencing the Indian telegraph system, as a fine road extends from the former to the latter place, with bridges over all the streams. In the other lines laid down it might be necessary occasionally to cross rivers; for this I am provided with a subaqueous electro conductor, consisting of the wire (or wires), coated with gutta percha (already described), and *braided or served* with yarn, properly saturated with tar, and coated externally with marine glue, which is extensively used in the construction of timber-built ships sailing to all parts of the globe. Many other modes may be adopted for crossing rivers; but even in the case of a river presenting a complete barrier to the wire being deposited in its bed, telegraphic communication may be formed without any wire at all, and which plan is carried into effect in America; and in this country experiments have been successfully made to show the practicability of it."

"The Honorable Chairman, during the interview already mentioned, suggested a difficulty with regard to the gutta percha being attacked by the white ant; but I am enabled to say that Mr. Thom, a practical chemist, confidently states that bichloride of mercury (corrosive sublimate) being incorporated with the gutta percha, would present a complete barrier to the attack of the white ant, or other insects; as, by combining with the albumen in the organic tissues of the digestive organs of the insect, it would entirely destroy life. Again; arsenious acid, and other mineral poisons, might be used for the same purpose. Realgar (sulphuret of arsenic), for instance, may be mentioned as one such antidote; or organic poisonous principles may be combined with the gutta percha, so as entirely to repel the insect tribes by their smell."

Yours faithfully,

FRANCIS WHISHAW, C.E.

LECTURES.

SIR,—It was the prevailing sentiment at the Conference on the 9th inst., that three difficulties lay in the way of the Society of Arts affording aid to Provincial Institutions with respect to Lectures. 1st. Institutions complain that when they engage new Lecturers they

incur the risk of frequent disappointment as to ability and qualification, which they have seldom the means of ascertaining beforehand. 2ndly. It is said that the majority of Institutions are unable adequately to remunerate Lecturers of such a class as are likely to give satisfaction. 3rdly. That it is extremely difficult to get localised Institutions to unite in engaging the same Lecturer at the same time, although an engagement were intended by each. Would not the Society of Arts be doing much to remove the first difficulty, and be efficiently serving a number of deserving Institutions, by publishing a list of Lecturers of known talent and ability, who might be willing to render such services? I would not limit this to Lecturers of the first class, and requiring first class fees; but descend to those (and I imagine there are many) whom a fee of two to four guineas per Lecture would satisfy,—if five Lectures per week could be arranged at convenient distances. Generally it would be unreasonable to expect as good a Lecture for two guineas as when four were paid; but as the majority of Institutions can only afford the modest fee, I desire to see those helped who really require and deserve it most.

The removal of the second and third difficulties must rest chiefly with the Institutions themselves, by providing more ample Lecture funds, or by making their present means go further. To solicit for the best gratuitous Lectures which the resident talent can supply, and particularly from out their own members, is important; and in the engagement of paid Lecturers, to consult neighbouring Institutions with intent to engage, if possible, the same Lecturer in the same week. I regret to know that with most Institutions there is not only no disposition to do this, but a very decided one not to do it. Local Secretaries are constantly complaining to me that their brother Secretaries frequently decline to answer such letters, although by this plan each might often reduce the cost of Lectures one-third or more. Any six or twelve Institutions, within a moderate distance, thus united, might be independent of the world in their Lecture arrangements. I have seen it done with great success. The chief difficulties are the following, but all may be more or less overcome. Take, for example, a small county, with twelve Institutions,—granted the desire to form a little Lecture Union; as soon as they get into harness, they find that one makes its Lecture list in June, another in July or September. A arranges for a four months' course, B for the whole session, and C never for more than two months in advance; and all these very much prefer the same day of the week for Lectures. On these points there must be a little concession on all hands for mutual benefit.

Failing to carry out the foregoing, Institutions, if armed with a list of accredited Lecturers on various subjects, might be solicited to make their Lecture arrangements, say in June or July, and transmit their wishes to the Society of Arts on a certain day, when the Central Committee might greatly facilitate the subsequent arrangements to the mutual convenience of all. It is true this has failed in Yorkshire; but it may succeed further south. Although I believe that a better understanding between Provincial Institutions is one of the *good things* in the "*good time coming*," I submit that the Society of Arts would be only acting the part of parental duty by recommending to its affiliated Institutions a more kindly and fraternal spirit, believing that they cannot help each other without being more than equally helped in return.

I am, Sir, yours faithfully,
E. W.

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

ROYAL GEOGRAPHICAL SOCIETY.—The last meeting of this Society for the Session was held on Monday week, in the Theatre of the Royal Institution, Albemarle-street; Sir Roderick Murchison in the chair. The communications were: 1. "Island of Chusan." By Sir John F. Davis, Bart.; with map. 2. "Peninsula of Samana, in St. Domingo." By Sir Robert Schomburg; with map. Communicated by the Foreign-office. 3. "Rio Negro, and the Head Waters of the Amazon." By Alfred R. Wallace, Esq.; with map. 4. "Rio Maulé in China." By Captain Walter Hall; with map. 5. "Remarks on the Levels taken in Jerusalem with the Aneroid." By Capt. W. Allen; with illustrations. 6. "Excursion from the Atrato to the Bay of Cupica." By Commander Friend, R.N. Communicated by Capt. Barnett, R.N. 7. "Contributions to the Arctic Geography of the Norsemen." By Professor Ch. Rafa, of Copenhagen, &c.—CHUSAN.—This island, important from its geographical position, being in 30 degrees of north latitude, appears to deserve more attention than has hitherto been bestowed upon it in this country. It is fifty-one miles in circumference, possessing in most parts a rich and fertile soil, with an industrious half-Chinese, half-Japanese population of 200,000 souls, within eighty miles of the embouchure of the great Yang-tse-Kiang, or Yellow River, and not more than forty from Chapoo, (or the main land from whence the imperial trade to Japan is carried on), the importance of its position, in a commercial point of view, cannot be over-estimated. The harbour on the south side of the island, adjoining the capital, Tinghai, is good and safe, but from the strong tides and numerous sunken rocks, it requires care in approaching and entering. The tides, indeed, are exceedingly strong—at times, nine knots an hour—and the rise and fall in places so irregular and unknown that too much care can hardly be given to the difficult navigation of this part of the coast. The climate, of which accurate Tables were kept during our occupation of the island, appears temperate and wholesome, and the unfortunate mortality amongst our troops seems to have arisen from bad lodging and bad food, combined with the immoderate use of the pernicious Chinese spirit, "samshoo." The average temperature is very low, considering the latitude of the island; north-west winds prevail throughout the year, and it is only during the months of July and August that the climate is at all oppressive to Europeans. The wet and dry seasons here and at Hong-Kong are reversed, at Chusan the winter being the rainy season, though only a difference of eight degrees of latitude intervenes. Rice is the staple product of the island, and appears to be cultivated with all the care and patient industry for which the Chinese are so remarkable. The cotton plant is also largely cultivated near the sea; it is of a very fine fibre, and superior to what is imported from India. The tea plant grows wild, but is much neglected. The apple, pear, plum, and apricot-trees, grow in the island, as does the valuable camphor-tree, but are all neglected for rice, which is encouraged by a beautiful and perfect system of canal irrigation; and stone dykes, three and even four in number, are frequently erected, to keep out the inroads of the sea. The capital, Tinghai, had, during the time of our occupation, a population of 30,000 souls. It is on the south side of the island, about half a mile from the sea-beach, and defended by a wall of about three miles in circumference, situated in a fertile valley,

everywhere intersected by canals, as is the town itself. The adjoining seas abound with fish; and in the neighbourhood of the island the delicious mandarin fish is caught, and sent in great numbers in boats, in packed ice, to the main land. This fishery alone employs upwards of 1,000 boats. Fowls and ducks are raised in great quantities, and hatched by artificial means, forty ducklings being sold for one dollar. The food of all classes is rice; and as they have a great aversion to beef, milk, or butter, rice, and fish of all kinds, with barley, sweet potatoes, and millet, for the poorer classes, constitute their daily meals. The character of the population is that of China in general,—“hardworking and patient, but lying, thievish, and faithless.” They are patterns, however, of contentment and cheerfulness, under difficulties. Female infanticide prevails on the island, as elsewhere in China, and few are rich enough to have more than one wife. Their religion is the grossest idolatry; the priests, however, exercise no influence over the minds of the people, being generally treated with contempt; and they chiefly subsist on alms. There is an abundance of small temples, or joss houses, all over the country. Education does not appear to be so much attended to as elsewhere in China, although two colleges existed when we took possession of the island, the mass of the population, from their extreme poverty, being neither able to read nor write.—The President directed attention to the expedition proposed by Mr. Ernest Haug, to ascend the Victoria River in North Australia, thence to penetrate to the east towards the Gulf of Carpentaria, and the country behind the present so rapidly increasing colonies of Eastern Australia. Two of the aborigines who had lately arrived in this country were present, under the care of Dr. Hodgkin and Mr. Cull, and Mr. Brierley’s beautiful sketches of the country about the Cape York Peninsula, were greatly admired. Mention was next made of the departure of Mr. Albert Robinson, who, in his yacht, was about to proceed to Greenland to investigate the mineral resources of that country.

PROCEEDINGS OF INSTITUTIONS.

BURY ST. EDMUNDS.—From the Third Annual Report of the Young Men’s Institute, it appears that during the past session it had numbered 402 members; its receipts had been 240*l.*; whilst the number of lectures, conversazioni, &c., had been 32. Of classes, 5 had been in active operation; viz., Music, Drawing, Arithmetic, English Grammar, and French,—giving an average attendance of 60 weekly. In about nine months there had been an issue of 5,628 books and periodicals, and the average attendance in the Reading-room 250 per week. At the recent Anniversary (the sixth from its origin), a handsome testimonial was presented by the members to C. W. Jones, Esq., the Honorary Secretary of the Institute, in consideration of valuable services, in raising the society to its present prosperous position. A presentation was likewise made to the Treasurer. In returning thanks Mr. Jones said, “It would not be uninteresting to glance at the History of the Institution, whose anniversary they were then celebrating, and to be reminded of the unpretending source whence sprung the rivulet which had expanded itself into so large a river. He would enumerate in order the various epochs of its eventful career. 1. In 1847 the ‘Mutual Improvement Association’ was launched into being, under the guidance of only six working young men. 2. In 1850 it

was re-organised as the ‘Young Men’s Institute,’ for Lectures and Classes. 3. In 1852 it became necessary to extend its operations, by adding a Reading-room and Library. 4. And in the present year, 1853, the society had developed itself into the ‘Athenæum,’ embracing not only all its former usefulness, but also a Museum, and an Institute of Archæology and Natural History. He would further bring before their notice a few proofs of the prosperous operations of the Young Men’s Institute, giving them a comparative statement for the three last years. 1. Members in 1851, 257; in 1852, 345; and in 1853, 402. 2. Lectures, Conversazioni, &c., in 1851, 50; in 1852, 31; and in 1853, 32. 3. Funds on the receipt side, in 1851, 63*l.*; in 1852, 121*l.*; and in 1853, 240*l.*, with a large balance each year on the right side. Thus in three years the society numbered 1,004 members, 113 lectures, and 424*l.* 4. Property,—They possessed a valuable library of upwards of 2,000 volumes; with maps, busts, drawings, diagrams, and the necessary paraphernalia of a Reading-room, Library, and Class-rooms. 5. Attendance at lectures,—By taking a fair average of the audiences, the aggregate attendance would be above 22,000. He had now given a proof of the *hearing*, and would proceed to the *reading*. 6. Issue of books,—In little more than nine months 5,628 volumes had been circulated. 7. Attendance in Library—This had been of the most encouraging character, and averaged in a week no less than 250. 8. Classes,—The success of these was evident, from an average of 60 attendances in a week.”

POOLE.—The members of the Town and County Library and Literary Institute held their Annual Meeting in the Library on Friday evening, the 28th ult., John Durant, Esq., in the chair. The report, as read by the Honorary Secretary, stated that one of the most important events which had occurred since the last meeting was the arrangement which had been made with the Society of Arts, by which many of the privileges hitherto only enjoyed by that body have been conferred upon this Institute. The financial report showed a balance of 11*l.* 15*s.* 10*d.* in the hands of the Treasurer, and outstanding subscriptions to the amount of 24*l.* 6*s.* The meeting then proceeded to the election of officers, when Major Waugh, of Branksea Castle, was elected President, and the Vice-Presidents, and Committee were re-elected, together with the Treasurer, H. M. Aldridge, Esq., Librarian, Mr. G. H. Gutch, and the Honorary Secretary, Mr. J. B. Bloomfield.

TO CORRESPONDENTS.

Notice.—Members, and others, who can furnish or obtain original information or suggestions on the subjects included in the Society’s Premium-list, or other topics connected with the Society’s various departments of operation, are invited to communicate the same to the Secretary, in as condensed a form as possible, for the purpose of being either read and discussed at the evening meetings, or inserted in the Society’s weekly Journal. Anonymous letters cannot be attended to. All communications, whether the author’s name is to appear or not, must be accompanied by the writer’s name and address.

Members of the Society who do not receive the JOURNAL regularly, are requested to give immediate notice to the Secretary; and, in order to prevent mistakes, they are particularly requested to signify any change which they desire to have made in their address, with as little delay as possible.

Country Institutions.—Correspondents who are so good as to send reports of proceedings of Local Institutions, are requested to forward them immediately after the Meeting to which they refer, and not later than Tuesday morning, if intended for insertion in the following Friday’s Journal.

“J. W. B.”—To the first question—early in July; to the second—yes.

"A Reader" should apply to the Secretary of the Society of Arts.

Errata.—In Weekly List of Patents Sealed, page 376, 51 lines from the top; *for*

Year, 1853:

85. William Nairn, of South Inch Mills, Perth—Improvements in reeling yarns or threads: *read*

Year, 1852:

85. Joseph Brandeis, of 92, Great Tower-street—Improvements in the manufacture of sugar and saccharine solutions.

MISCELLANEA.

STATISTICS OF EDUCATION, ADULT AND JUVENILE, IN THE CITY OF CARLISLE.—The population of Carlisle is a trifle less than 30,000. It has 14 public literary Institutions—libraries, news-rooms, and both combined—of which 3 are for the middle and wealthier classes, at a charge of a guinea a year or more to each member; and 11 for the humbler classes, of which 2 are at the rate of twopence, and 9 at a penny a week. Of those at twopence, the Mechanics' Institute (chiefly frequented by clerks, assistants, and apprentices to shopkeepers,) has the lion's share of public support, is of many years' longer standing than its humbler colleagues, numbers 630 members, and has a library of 3,500 volumes, with a news-room containing 3 daily and 14 weekly papers, 6 quarterly and monthly and 12 weekly periodicals. The Temperance news-room, at the same charge of twopence a week, is of six years' standing, has 98 members, 87 volumes, 4 daily and 10 weekly papers, and 4 magazines. Of the 9 rooms at a penny a week, 5 present a feature of peculiar interest, being entirely under the management of working men; these 5 genuine working men's reading-rooms give a total of 609 members, averaging 122 to each Institution; have 2,067 volumes among them, at an average of 413 to each; have 6 daily papers, or more than 1 a-piece; have 48 weekly papers among them, or 9 a-piece; and 14 monthly and 41 weekly periodicals among them, or 3 and 8 respectively to each. Of the remaining 4 rooms at a penny a week, the superintendence rests with others than working men; these include 429 members, and average 107; with 1,709 volumes in all, averaging 427 each; 5 daily and 21 weekly papers, being respectively 1 and 5 to each; with 8 monthly and 17 weekly periodicals, giving 2 and 4 to each. The penny rooms, taken first alone, and then with the two-penny rooms, give the following totals:—Members, 1,038 and 1,766; volumes, 3,766 and 7,363; daily papers, 11 and 18; bi-weekly and weekly papers, 69 and 93; quarterly and monthly magazines, 22 and 32; and weekly periodicals, 58 and 70. The members of these 11 cheap rooms run 6 per cent. to the entire population, and if it be supposed that some, by enrolling in more rooms than one, may be reckoned twice or oftener, it must be remembered that the other 3 of the 14 Institutions have not been analysed at all. There are in Carlisle 9 public day-schools for the humbler classes, entry to which is either gratuitous or at a merely nominal charge. In these there are at this time (June, 1853) 1,853 scholars, averaging about 206 to each, and being above 6 per cent. of the entire population. There are, besides, 8 public Sunday-schools, numbering in all 1,190 scholars, and averaging about 149 to each. It is not known how many of the children are counted both in the week-day and Sunday-schools; but neither are all the latter given, nor yet the grammar-school, nor of course any of the numerous private or proprietary schools, some of which are very numerous attended.

PARLIAMENTARY REPORTS.

SESSIONAL PRINTED PAPERS.

Par. No. *Delivered on 15th June, 1853.*

289 (1). New Windsor Election—Index to Minutes of Evidence.

290 (1). Maldon Election—Index to Minutes of Evidence.

536. Select Committees—Return (a corrected copy.)

585. Vessels, Tonnage, &c.—Return.

590. Bills—Spitalfields to Shoreditch Improvement.

607. "—Succession Duty (amended).

609. Parish Vestries (No. 2.)

Delivered on 16th June.

375 (1). Leicester Election—Index to Minutes of Evidence.

382 (1). Barnstaple Election—Index to Minutes of Evidence.

577. Rated Occupiers (Ireland)—Abstract Return.

528. Cork Election—Minutes of Evidence.

612. Raisons—Copy of Correspondence.

606. Bills—Burial Grounds.

601 (a). "—Excise Duties on Spirits (Clauses to be proposed.)
Cape of Good Hope—Copies of two Ordinances.

Delivered on 17th June.

604. Berwick-upon-Tweed Election Petition—Report from Committee.

610. Bill—Evidence Amendment.

Revenue, Population, Commerce, &c.—Tables; Supplement to Part XVIII., Sec. B.

Delivered on 18th and 20th June.

569. Bury St. Edmund's Election—Report from Committee.

572. Sligo Election—Report from Committee.

600. Sligo Election—Minutes of Evidence.

616. Income Tax—Return.

608. Bills—Common Lodging-houses (Amended.)

613. "—Municipal Corporations Act Amendment (Amended.)

621. "—Westminster Bridge (as amended by Select Committee.)

623. "—Resident Magistrates (Ireland.)

624. "—Malicious Injuries (Ireland.)

625. "—Soap Duties.

626. "—Simony Law Amendment.

Arterial Drainage in Ireland—Report of Commissioners.

Delivered on 21st June.

504. Customs Duties—Return.

581. Dockyards, &c.—Return.

598. Lead and Lead Ore—Account.

627. Indian Territories—Lords' First Report.

Factories—Reports of the Inspectors.

Delivered on 22nd June.

377 (1). Rye Election (Further Inquiry)—Index.

531. Drunkenness, &c.—Abstract of Return.

580. Peterborough Election—Report.

597. Coal-laden Vessels—Copy of a Memorial.

611. St. George the Martyr (Middlesex)—Return.

617. Customs—Return.

632. Government of India—Correspondence.

633. Customs—List of Articles.

630. Bill—Landlord and Tenant (Ireland), as amended by the Select Committee.

637. "—Assessed Taxes.

Criminal Offenders (Scotland)—Tables.

PATENT LAW AMENDMENT ACT, 1852.

APPLICATIONS FOR PATENTS AND PROTECTION ALLOWED.

From Gazette, 17th June, 1853.

Dated 19th April, 1853.

940. W. Hale—Fire-arms.

Dated 9th May.

1344. E. B. Beaumont—Construction of dwelling-houses and bricks and tiles.

Dated 27th May.

1306. A. M. Servan—Manufacture of candles.

Dated 28th May.

1312. W. Smith—Submarine telegraph cables.

Dated 30th May.

1352. R. A. Brooman—Fire-arms. (A communication.)

Dated 1st June.

1340. E. Wilkins—Flower-pots.

1344. J. L. Lemaire-Daimé—Play-arms.

Dated 2nd June.

1348. W. Knowles—Machinery for warping, &c.

1349. J. Whitworth—Machinery for cutting and harvesting corn.

1350. J. Whitworth—Perforating paper, &c.

1351. J. R. Johnson—Manufacture of type, &c.

1352. W. Thorold—Portable houses, &c.

1353. R. L. Hattersley—Machinery for forging iron.

1354. W. H. Smith—Parchment.

1355. A. R. C. Madoré and D. Neuberger—Shirts.

1356. H. Hughes and W. T. Denham—Weaving machinery.

1357. R. S. Barlett—Needles.

1358. R. M. Cummins and J. de Cock Kenifeck—Flax machinery.

1359. W. Boyd—Chlorine or chlorides.

1360. W. E. Newton—Soles for boots, &c. (A communication.)

Dated 3rd June.

1361. W. Wahler—Self-acting lithographic printing-machine.

1362. J. Durandean—Marks and designs in paper.

1363. F. J. Gossart—System of permanent circulation of calorific.

1365. J. S. Wilson—Digging-machine.

1366. J. Kendrick—Steam-boilers.

1367. T. B. Daft—Inkstands.

1368. R. Robbins—Grinding wheat, &c.

1369. J. Hayes—Raising and stacking straw, hay, corn, &c.

1370. W. E. Maude—Carriages. (A communication.)

1371. W. E. Maude—Steering ships. (A communication.)

Dated 4th June.

1372. C. F. Lenz—Mechanism to prevent loss of force by friction. (A communication.)
 1373. W. Bradburn—Grease and oil.
 1374. J. Gyde—Grinding and dressing corn, &c.
 1377. H. J. Betjemann—Chairs.
 1378. E. B. Beaumont—Bricks and tiles.
 1379. J. Burch—Fans, blasts, &c.
 1380. W. Dray—Driving shafting.
 1381. B. Biram—Working and ventilating mines.
 1382. T. R. Nash—Filters.
 1383. C. Schiele—Pressure indicators.
 1384. J. Whitehead—Pipes, &c., from plastic materials.
 1385. T. Richbell—Slate for building.

Dated 6th June.

1386. G. Carter and G. Marriott—White lead.
 1387. J. Gundry—Fishing-nets.
 1389. A. B. Baron von Rathen—Motive power.
 1391. C. Nickels—Weaving.
 1393. H. Wiglesworth—Coupling railway carriages.

Dated 7th June.

1395. H. G. Rowe, and A. G. and W. H. Andrew—Fastening handles of knives, &c.
 1396. F. Lipscombe—Ships and boats.
 1397. E. Lavender—Manufacture of fuel, and machinery for same.
 1398. A. V. Newton—Chest-expander and abdominal supporter. (A communication.)
 1401. R. B. Cousens—Manufacture of casks, &c.

Dated 8th June.

1402. F. L. H. Danchell and W. Startin—Obtaining auriferous deposits from beds of rivers, &c.
 1403. G. Tillett—Portable houses.
 1404. J. Horrocks—Percussion caps.

APPLICATION WITH COMPLETE SPECIFICATION FILED.
 1408. A. Ponçon—Motive power. 9th June, 1853.

WEEKLY LIST OF PATENTS SEALED.

*Sealed 16th June, 1853.**Year, 1852 :*

1077. Richard Blades, of Liverpool—Improvements in the method of cleansing sewers and drains, and in the machinery or apparatus connected therewith.
 1080. Thomas Motley, of Bristol—Improvements in constructing the tablets, letters, and figures for indicating the names, designations, or numbers of streets, houses, buildings, and other places.
 1081. Auguste Edouard Loradoux Bellford, of 16, Castle-street, Holborn—Invention of a new system of stopping bottles and other vessels. (A communication.)

Sealed 17th June, 1853.

1134. John Filmore Kingston, of Carroll County, State of Maryland, United States of America—Improvements in obtaining motive power by electro-magnets.

Year, 1853 :

44. Charles De Bergue, of Dowgate-hill, City—Improvements in the permanent way of railways.
 167. John Medworth, of 9, Claremont-cottages, Campden-hill, Kensington, and Lawrence Lee, of 498, New Oxford-street—Improvements in lithographic presses.
 169. Peter Hubert Desvignes and Francis Xavier Kukla, of Lewisham, Kent—Improvements in galvanic batteries.
 367. William Choppin, of London—Improvements in locks.
 476. John Grist, of Hoxton—Improvements in machinery for the manufacture of casks, barrels, and other similar vessels.
 672. George Rock Lucas, of Dronfield, near Sheffield—Improvements in the method of raising water and other materials from mines.
 877. Downes Edwards, of Ravenscliffe, Douglas, Isle of Man—Improvements in signal apparatus for railways.
 890. James Noble, of Leeds—Improvements in preparing cotton and other fibres.
 894. James Noble, of Leeds—Improvements in preparing cotton and other fibres.
 945. Christian Böhrlinger and Gustavus Clemm, Directors of the Chemical Works, Wohlgelegen, near Mannheim, and Heilbronn, Baden, Wurttemberg—Improvements in the manufacture of soda and potash.
 961. Juan Duran, of Puerta del Sol, Madrid—Invention of obtaining and applying motive power.
 985. George Fergusson Wilson, of Belmont, Vauxhall, William Henry Hatcher, of Mann-street, Old Kent-road, and John Jackson, of Southville, Wandsworth-road—Improvements in apparatus for manufacturing moulded candles.

1004. Moses Poole, of Avenue-road, Regent's-park—Improvements in the manufacture of porcelain and like wares. (A communication.)
 1007. George Ferdinand de Fonville, of 13, Rue de la Darce—Invention of a filtering-machine, which acts under water, and is applicable to the filtering of all liquids.
 1024. Richard Jordan Gatliff, of Indiana, United States of America—Invention for distributing power to machine-shops, factories, and other places.
 1067. Christian Radunsky, of Cockspur-street—Improvements in electro-voltaic apparatus. (A communication.)

*Sealed 21st June, 1853.**Year, 1852 :*

1117. Robert Powell, of Berwick-street, Golden-square—Improvements in coats and other garments.
 1133. John Henry Johnson, of 47, Lincoln's-inn Fields, and Glasgow—Improvements in machinery or apparatus for forging iron and other metals. (A communication.)
 1137. Frederick Aykbourne, of 99, Guildford-street, Russell-square—Improvements in rendering certain materials impervious by air or water.
 1166. Pierre Charles Nesmond, of Bellac, Haut Vienne, France—Improvements in machinery applicable to the manufacture of ice, and to refrigerative purposes generally.
 1197. Auguste Edouard Loradoux Bellford, of 16, Castle-street, Holborn—Improvements in machinery for grinding and reducing gold quartz to an impalpable powder, and amalgamating the said ground quartz with quick-silver; the same being applicable also to the pulverizing and washing of ores. (A communication.)
 1201. Henry Hutchinson, of Sheffield—Improvements in machines for washing bottles.
 1202. James Ward and William Burman, of Stratford-on-Avon—Improvements in machinery for making bricks and tiles.

Year, 1853 :

84. George Augustus Huddart, of Brynkir, Caernarvon—Improvements applicable to steam regenerators.
 208. William and John Galloway, of Manchester—Improvements in steam-engines and boilers.
 283. Auguste Edouard Loradoux Bellford, of 16, Castle-street, Holborn—Improvements in furnaces and apparatus combined therewith, for making wrought iron directly from the ore, and for collecting and condensing the oxides or other substances evaporated in the process of deoxidizing iron or other ores. (A communication.)
 609. Edward Taylor Bellhouse, of Manchester—Improvements in iron structures.
 670. Auguste Edouard Loradoux Bellford, of 16, Castle-street, Holborn—Improvements in power-looms. (A communication.)
 715. Robert Grundy, of Hindley, and James Jones, of Warrington—Improvements in machinery for preparing, spinning, and doubling cotton and other fibrous materials.
 732. James Worrall, junior, of Salford—Improvements in the method of preparing, treating, and finishing cut, piled, or raised fustians, and other similar goods or fabrics, and in the machinery or apparatus connected therewith.
 768. James Worrall, junior, of Salford—Improvements in the method of preparing, treating, and finishing certain textile fabrics called cords, thicksets, velveteens, and beaverteens.
 966. William H. Johnson, of Granville, Hampden, Massachusetts—Invention of sewing cloth, leather, and other materials.
 967. William Edward Newton, of 66, Chancery-lane—Improvements in machinery for bending wood or other materials. (A communication.)
 997. Jacques Emile Joffraud, of Paris—Improvements in machinery or apparatus for washing earths containing gold, extracted from the bottoms of rivers or other waters.
 1016. George Turner, of Bradley-terrace, Wandsworth-road, and Robert Holloway, of St. James's-street, Hatcham New Town, Old Kent-road—Improvements in the manufacture of unfemented bread, which improvements are also applicable to other purposes as a substitute for yeast.
 1040. Robert Davison, of 33, Mark-lane, and James Scott Horrocks, of Heaton Norris, Lancashire—Improvements in the means of conveying and distributing or separating granular and other substances.
 1078. Louis Corindes, of 4, Trafalgar-square—Improvements in treating certain ores and minerals for the purpose of obtaining products therefrom.

WEEKLY LIST OF DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

Date of Registration.	No. in the Register.	Title.	Proprietor's Name.	Address.
June 16	3477	Sash-fastener.	Thomas James Perry	Lozells, near Birmingham.
„ 20	3478	Duck and Wilson's Improved High-pressure Cistern Cock.	W. Duck and W. Wilson	49 & 83, London-road, South-wark.